

AN INTERESTING CASE OF ANTENNAL ANTIGENY IN
THYSANOPTERA.BY J. DOUGLAS HOOD, *United States Biological Survey.*

Sexual differences of both color and structure are very common in Thysanoptera. Usually these differences are minor, but they can no doubt be detected in every species. Occasionally the antigeny produces a dissemblance in habitus which in a few instances has led to the assignment of the sexes to different species or even genera. The dimorphism may appear in any part of the body. It concerns the form of the head in *Trichothrips flavicauda*; the size, form and armature of the three distal segments of the fore legs in nearly all species of Tubulifera; the size and structure of the prothorax, particularly in the Phlæothripidæ; the armature of the pterothorax in the genus *Dinothrips* and of the abdomen in *Kakothrips* and the Megathripidæ;—as well as affecting in numerous ways several other parts of the body of various species. Thus, ocelli and wings are wanting in the males of *Chirothrips* and *Limothrips*; and in the males of most Thripoidæ the abdominal sternites have pale sensory areas of constant form and arrangement. Frequently, too, the color of the male is radically different from that of the female.

The antennæ, however, are usually very stable, differing but little with sex, among individuals, or even in different species of the same genus. Many genera are separated on the strength of such characters; and recently a new family has been erected for two European species whose antennæ depart distinctly from the general plan of the group to which they belong.

The occurrence in the United States of a species whose female has antennæ of normal form and structure but whose male has these organs so modified through the reduction in size of certain segments, the increase in size of others, and the multiplication of sensory hairs of their surface, must thus be of importance in its effect upon our conceptions of generic characters. While such sexual anomalies should perhaps not in themselves be made the basis for the separation of new genera, they nevertheless point to a probable difference in phylogeny and lead to a search for correspondingly important characters in the opposite sex. In the case of this species such characters are found in the form of the head, the position of the anterior ocellus, the proportionate lengths of the antennal segments, the narrowed prothorax, and the vestigial condition of the ovipositor. It is thus proposed to remove *Thrips perplexus* (Beach) from the genus *Thrips* and to erect for it the new genus described below.

Plesiothrips gen. nov.

(πλησίος, near; θρίψ, a wood worm.)

Body depressed. Head scarcely wider than long, usually broadest across eyes and constricted behind them, triangularly produced in front, sides about parallel between eyes and base of antennæ, the anterior ocellus completely anterior to front margin of eyes. Eyes prominent, protruding, much narrower than their interval. Antennæ seven-segmented, the fourth longer than the third, the seventh slender, males with distinct accessory "ring-joint" at base of segments 4 and 5; antennæ of female nearly normal in structure, those of male with third and seventh segments small and the fourth to sixth elongate and bearing many long hairs which have no analogue in the female; sense cones on segments 3 and 4 forked in both sexes. Maxillary palpi three-segmented. Prothorax of female about as long as head and but very little wider, that of male distinctly shorter; two pairs of long bristles at posterior angles. Wings long and slender, the spines on anterior margin of fore pair long and slender, barely distinguishable from the fringe. Abdomen of the female conical at tip, spines in both sexes long and slender; ovipositor vestigial; ninth abdominal tergite of male with a pair of long, heavily chitinized, finger-like processes arising from strong tubercles on posterior margin, in addition to four pairs of long bristles, of which an approximate median pair are shorter.

Type: Sericothrips ? perplexa Beach.

In addition to the characters furnished by the antennæ and tip of the abdomen in the male, *Plesiothrips* may be separated in the female sex from *Thrips* and *Bagnallia* by the produced head, the position of the anterior ocellus, the elongate fourth antennal segment, the narrow prothorax, and the almost complete absence of an ovipositor. The appearance of "ring-joints" through an actual breaking up of antennal segments is significant, indeed, pointing to the possibility of evolution in the order through an increase in the number of segments. Reduction by fusion is of common occurrence.

Plesiothrips perplexus (Beach).

(Plate XV, Figs. 1-4.)

1896. *Secicothrips ? perplexa* Beach, Proc. Iowa Acad. Sci., Vol. III, p. 216. (Ames, Iowa; on *Cyperus*, corn, and grass.)

1902. *Thrips perplexus*, Hinds, Proc. U. S. Nat. Mus., Vol. XXVI, p. 184, Pl. VI, figs. 66-68, Pl. XI, fig. 123. (Amherst, Mass.; on grasses.)

1913. *Thrips perplexus*, Morgan, Proc. U. S. Nat. Mus., Vol. 46, p. 44. (Florida and Tennessee; grasses, sod and cedar.)

Female (macropterous). Both Miss Beach and Dr. Hinds (loc. cit.) have written good descriptions of this sex, and Hinds gives four figures. Detailed measurements are given below, and on Plate XV, figures 3 and 4 illustrate the head and prothorax and the antennæ.

Measurements: Length 1.06 mm.; head, length 0.123 mm., width 0.135 mm.; prothorax, length 0.126 mm., width 0.153 mm.; pterothorax, width 0.204 mm.; abdomen, width 0.198 mm.; wings of fore pair, length 0.660 mm., width at base 0.057 mm., at middle 0.041 mm.

Antennal segments:	1	2	3	4	5	6	7
length (μ)	24	33	40	50	36	60	28
width (μ)	32	24	22	22	17	18	8
total length of antenna, 0.271 mm.							

Male (macropterous). Length about 0.9 mm. Color blackish brown, with tarsi, apices of tibiae, pedicel of third antennal segment, and five or six basal abdominal segments yellowish; thorax with orange-red hypodermal pigment; fore wings brownish gray, nearly clear in basal third, beyond which and at tip they are slightly darker.

Head more slender than in female and slightly longer than wide. Antennae (Plate XV, fig. 1) with third and seventh segments small, and the fourth and sixth elongate and bearing many long hairs; pedicels of segments 4 and 5 distinctly separated from segments themselves and freely movable.

Prothorax 0.8 as long as head and about 1.4 times as wide as long.

Abdominal sternites 3 and 4 with a pair of small, circular, pale areas at lateral third; tergite 9 (Plate XV, fig. 2) with a pair of long, heavily chitinized, finger-like processes arising from strong tubercles on posterior margin, in addition to four pairs of long bristles of which an approximate median pair are shorter.

Measurements: Length 0.88 mm.; head, length 0.120 mm., width 0.115 mm.; prothorax, length 0.096 mm., width 0.138 mm.; pterothorax, width 0.180 mm.; abdomen, width 0.120 mm.

Antennal segments:	1	2	3	(4)	4	(5)	5	6	7
length (μ)	24	30	30	3	59	3	44	84	15
width (μ)	30	24	21	8	20	8	18	18	3
total length of antenna, 0.292 mm.									

Distribution:

Iowa.—Ames, August and November (Beach).

Massachusetts.—Amherst (Hinds).

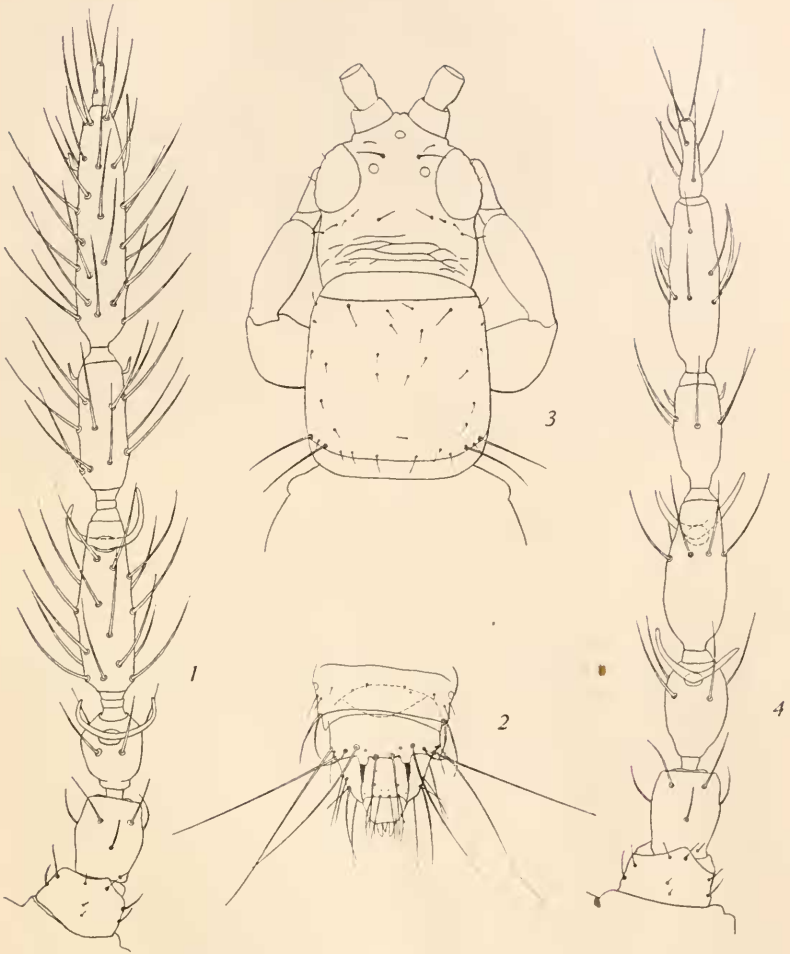
Florida.—Quincy, September 8, 1909 (Morgan); Orlando, November 4, 1914, C. B. Williams, 2♂'s.

Tennessee.—Clarksville, April 2, August 19, and October 15, 1910 (Morgan).

Maryland.—Plummer's Island, July 27 and September 14, 1913, J. D. H., 2♀'s.

District of Columbia.—Washington, November 3, 1914, J. D. H., 2♀'s.

Illinois.—Anna, Bondville, Carbondale, Clay City, Havana, Hillery, Makanda, Muncie, Odin, Pulaski, and Urbana, throughout the year, 14 ♀'s and 10 ♂'s.



PLESIOTHRIPS PERPLEXUS (BEACH),

- Fig. 1. Male, left antenna.
- Fig. 2. Male, segments 8-10 of abdomen.
- Fig. 3. Female, head and prothorax.
- Fig. 4. Female, left antenna.

Texas.—Brownsville, December 8, 1910, C. A. Hart, 1 ♂.

In my experience, this species is restricted entirely to grasses, where the adults occur throughout the year at the base of the leaves, in the region of the axils. Morgan records it also from cedar, but this record is probably based on a single female which had paused in flight. The life habits are thus quite different from those of the species of allied genera, all of which live in more or less exposed situations in the flowers or on the leaves of plants. The ovipositor may have degenerated from disuse, the necessity for the insertion of the eggs in plant tissue to secure protection having disappeared with the changed habitat of the insect. In this respect, as Dr. Hinds remarks, the species shows a divergence toward the Tubulifera, which lay their eggs wholly externally. It should be added that so great is the reduction of the ovipositor that Miss Beach in describing the species was led to believe her specimens all males, whereas they were really all females. She directed attention in her discussion of the insect to the depressed head, the produced front, the position of the ocelli, and the elongate fourth antennal segment.

DESCRIPTIONS OF NEW ICHNEUMONIDÆ AND TAXONOMIC NOTES.

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The present paper consists largely of descriptions of new species of economic importance, together with some notes on previously described species and genera and the designation of a new genus.

Calliephialtes thurberiaë n. sp.

In color and markings this species is very like *Pimpla notanda* Cress., which should also be referred to *Calliephialtes*, but in structure and in the white lower surface of the scape and pedicel in the male it is more closely allied to *grapholitha* Cress.

Female. Length 9 mm.; ovipositor 8 mm. Face as wide as long and with a short median carina below the antennæ; distance from side of clypeus to eye much shorter than malar space; eyes slightly emarginate within; postocellar line sub-equal to the ocell-ocular line; occiput but weakly excavated; head throughout polished and impunctate; pro- and mesothorax polished and practically impunctate; notauli distinct anteriorly, the prescutum, viewed from above, subtruncate; foveolate furrow of mesopleura obsolete above position of punctiform fovea, the latter scarcely impressed; carina between metapleura and propodeum not obsolete in front of spiracle; propodeum polished, with scattered punctures laterally; nervellus broken at about the middle and at a distinct angle; first tergite